

# MAGNETIC REFERENCE LABORATORY, INC.

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## Calibration Tapes for 48 mm/s (1.88 in/s)

### EQUALIZATION STANDARDS FOR 48 mm/s (1.88 in/s) ON OPEN REEL

We have occasional inquiries for a ¼-inch open-reel Calibration Tape for the 48 mm/s (1.88 in/s) tape speed. We normally use the current equalization standard for this speed, which is that of IEC Standard 94, Part 1 (1981). This Standard uses the same equalization that is used at this speed on cassettes, namely transition frequencies of 50 Hz and 1320 Hz ("time constants" of 3180 µs and 120 µs). We recommend using this equalization.

There also exists an obsolescent (but never revised) NAB Standard from 1965, "Magnetic Tape Recording and Reproducing (Reel-to-Reel)". It has a section on "Special Purpose Limited Performance Systems" where "adequate voice intelligibility" is sufficient. This Standard uses the same equalization that is used at 3.75 in/s, namely transition frequencies of 50 Hz and 1800 Hz ("time constants" of 3180 µs and 90 µs). Considering that the difference in equalization is only 2 dB, and the response tolerance in this part of the NAB Standard is ±2 dB, it does not seem to serve any purpose to make a Calibration Tape to the old NAB Standard. Our recommendation is to use the current IEC Standard values, above.

We have been asked about a calibration tape for "audio logging machines" at 48 mm/s. We are not aware of any standard equalization for this application. If you are, please send us a copy of it, and we will make such equalization available. Otherwise, lacking any other standard, we will use the IEC standard cited above.

These calibration tapes do not conform to IEC Standard 94, part 2, in several respects: there is no voice announcement, some frequencies are omitted, some frequencies are shorter duration, the azimuth tone is recorded at 0 dB, and the frequency response tones are recorded at -10 dB. If these are a serious problem for you, please tell us.

### Contents of the Multifrequency Tape

Section	Frequency	Level	Duration of Tone
Reference Fluxivity	315 Hz	0 dB	24 s
Azimuth, Phase, & Preliminary Response	4 kHz	0 dB	24 s
Amplitude/ frequency Response	315 Hz	-10 dB	12 s
	125 Hz		12 s
	250 Hz		12 s
	500 Hz		12 s
	1 kHz		12 s
	2 kHz		12 s
	5 kHz		12 s
	6.3 kHz		12 s
	8 kHz		12 s
10 kHz	12 s		
Reference Fluxivity	315 Hz	0 dB	24 s
Approximate Total Duration			4 min

NOTE: Before 1995, Calibration Tapes with this same program number (107) used 1000 Hz as the reference frequency, and 200 nWb/m as the reference fluxivity. We have changed the reference frequency to 315 Hz to conform to IEC Standard 94, Part 2. Because of the standard equalization, these two changes balance each other, so the actual recorded flux at each frequency is essentially the same in each version.

### MRL Multifrequency Calibration Tapes

Tape Width <i>Playing Time</i>	Tape Speed	Equalization Standard	Level of Frequency Response Section	Catalog Number for Reference Fluxivity	Price
				180 nWb/m	
6.3 mm ¼ inch 4 minutes	48 mm/s (1.88 in/s)	IEC Domestic	-10 dB	211-107-450-102	100 \$
12.5 mm ½ inch 4 minutes				311-107-450-101	145 \$

Prices are in US \$, and do not include shipping or applicable taxes. Prices may be changed without notice.